

townsite situated on the margins of this limited area may soon be thrown open for purchase. If a small town is established then the birds at Two People Bay are doomed and this will be a reproach to the people of Western Australia.

The second danger is from bushfires during the summer months. On January 29, 1962, a careless fishing party allowed a fire to escape and devastate a very large area of country near Mt. Gardner and on the mountain itself. The territories of at least four male birds were burnt out, but fortunately small areas of scrub were left untouched. Very surprisingly, for the fire in the gullies must have been fierce, at least three of these birds escaped and are still there. A further fire was wantonly lit along the southern section of the bay on the morning of February 18 but stopped at a sandy track and did little damage. It should be remembered that the Bristle-bird, another of our rarest birds, is also to be found over the whole of this mountainous promontory and in the adjacent sandhill country as well.

It is clear that steps should be taken immediately to avoid both of these dangers by establishing a national park or at least a fauna and flora reserve under the control of the Fisheries Department.

PREPARATION OF BEES FOR CONSUMPTION BY A CAPTIVE BEE-EATER (*MEROPS ORNATUS*)

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On December 12, 1961, a Rainbow-bird or Australian Bee-eater (*Merops ornatus*) with a broken wing was brought to the C.S.I.R.O. Wildlife Survey Section's Laboratory, Nedlands, for treatment. The bird, an adult, was somewhat emaciated and ill-kempt, and subsequent examination showed the right wing to be fractured at the distal end of the humerus. Since such a break is best left to correct itself unaided, the bee-eater was confined to an aviary whilst we focussed our attention on its food requirements.

Until we were able to procure a small flight of live honey bees (*Apis mellifica*), the bird was given slaters, cicadas and blowflies. The blowflies it would snap up direct from their flight as they approached a lure designed for the purpose, and these were frequently swallowed after but one or two light taps against the nearest solid object. Cicadas, which were provided to the bird in a stunned state at the tip of a pair of forceps, received on an average two sharp whacks before consumption, whereas slaters were given no "killing" treatment at all and simply swallowed immediately.

At no time did the bee-eater seem inclined to flee and paid little attention to the proximity of human beings. It is on account of this that the subsequent observations could be made in the detail presented below.

When, on the second day, live bees were captured and a selection stunned and offered to the bird by forceps, it became immediately apparent that here we were witnessing what seemed a remarkable specialisation in the preparation for consumption of potentially dangerous prey.

The following is an account of the sequence of actions performed by the bee-eater in dealing with the bees. Observations were made at each feeding period, at four-hourly intervals over a period of four days, the bird accepting an average of six bees per meal. The bird's actions during this period were unvarying. A stunned bee, presented in forceps, would be eagerly snatched and held at its "waist" (petiole) by the tip of the bird's long beak. With a quick flick of the head it would rap the bee once (rarely twice) against the wooden perch usually over to the right hand side. This appeared to suggest to the bird the orientation of the bee's anatomy, namely in what direction, right or left, the abdomen was pointing. It seemed that upon this experimental test the following sequence of events depended.

Having rapped the bees thus, a quick movement by the beak resulted in the insect being held near the extreme tip of its abdomen, just proximal of the "sting." The bee was never reversed, whilst held in the beak, to ensure that the abdomen was pointed in any set direction; after the initial experimental or test rap, the bird unhesitatingly proceeded to deal with the abdomen in whichever direction it happened to be pointing.

With the bee firmly held as described, a series of movements, likened to hand motions when using an eraser, would then be executed, the bird rubbing the projecting tip of the bee's abdomen against the perch. About six short bursts of this activity would be made, and, to an observer knowing the character of this end of a bee, it seemed that the bird was endeavouring to render the sting inoperable. Indeed, in two instances the entire sting was later found lying along the perch, though this find was quite by accident, and made at a time when unfortunately no further observations could be made.

The next step involved the return of the bee to its original position, held by the "waist," though the relative directions of head and abdomen remained unchanged. The bee's head would then be whacked violently against the side of the perch, opposite the side used for the abdomen rubbing, two whacks being usually delivered; rarely, as though an afterthought, a third whack was given, these presumably to kill the bee. Straightening up, the bird always tossed the prepared bee to the back of its bill, then swallowed. This act was followed by one or two vigorous beak wiping movements over the perch.

No one process, "destinging" or "head whacking," was ever repeated or made out of the order described. Each bee received the same number of blows, in sequence, whether it had been offered alive, stunned or dead, and "destinging" always preceded "head whacking." Once apparently orientated by the initial rap, the bee's abdomen would be dealt with first on whichever side it happened to be, and the head end on the other.

An interesting deviation from the routine was observed when a bee without its abdomen was offered the bird. The initial rap was executed as usual, but in its vain attempts to grasp the missing abdomen the bird became very confused, and rapped both sides. Each rap was followed by an attempt to grasp soft anatomy which, of course,

failed. Finally both projecting ends were treated as head ends, being whacked twice each, and then swallowed in the usual manner.

In another feeding experiment a bee-sized blowfly was slipped into line in place of a bee in a succession of bees. The result was startling. The fly was snapped up, lightly rapped once, and swallowed with no further preparation whatsoever. The preceding and following bees were prepared as described, as indeed were all bees.

The bee-eater regurgitated large pellets, consisting of insect hard parts, to the number of two or three per day. One pellet measured 20 x 11 mm., this one approximating the average size.

SUMMARY

A captive adult Australian Bee-eater when fed with honey bees, blowflies, cicadas and slaters adopted an individual and stereotyped feeding technique with each type of animal. It instantly changed to the appropriate method when, for example, a harmless bee-sized blowfly was slipped into a feeding line of honey bees. The bees, but not the other insects, were invariably dealt with by a complicated series of movements which resulted in the stinging apparatus being rendered inoperative before the bee was killed and swallowed. The bird ascertained the position of the stinging end of the bee by one, sometimes two, initial blows of the insect against the perch.

HERPETOLOGICAL MISCELLANEA

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XIII. A NEW SKINK FROM THE NORTH-WEST CAPE, WESTERN AUSTRALIA

Lygosoma (Rhodona) nigriceps sp. nov.

This species is closely related to *Lygosoma (Rhodona) miopus* (Gnth.) from which it differs in the shape and size of the head shields, its coloration and longer limbs.

Body elongate, the distance from the tip of the snout to the fore limb $3\frac{1}{2}$ times in that from the fore limb to the hind limb. Fore limb represented by a bud in a depression or entirely absent, hind limb monodactyle. Head cuneiform, snout rounded with a projecting labial edge; rostral about twice as wide as high with a slightly concave suture to the nasals; nostril in a somewhat swollen nasal forming a short suture with its fellow and separating the rostral from the frontonasal; frontonasal about $1\frac{1}{2}$ as wide as long; wider than the frontal with which it forms a wide suture; prefrontals very small, widely separated, just visible from above, separated from the labials by the posterior loreal.

Frontal large, much wider than the supraocular region, as wide as long, about as long as its distance from the tip of the snout, fitting into the concave anterior margin of the fused frontoparietals, in contact with 2 of the 3 supraoculars; supraoculars 3, second largest, 6 or 7 supraciliaries; several small pre- and postoculars; frontoparietals and interparietals fused, wider and larger than the frontal; parietals long, forming a suture behind the frontoparietals; 5 upper